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THE NATURAL HISTORY OF HELL.

THE AUTHORS of this work enjoyed exceptional advantages for research, and for the attainment of information on matters social and religious in the lands of Syria, Palestine and Egypt. They were born in Jerusalem of Russian parents who took up their residence in the Holy Land, with the object of seeking for knowledge as might cast a search-light upon the conflicting dogmas and doctrines of Christian, Jewish and Mohamedan creeds, which all claim a common origin.

A FIRMAN from the Sultan of Turkey, Abd el Mejid, granted to their father, gave his family prestige, with the ruling Mohamedan families, and with the leading Oriental Christian and Moslem ecclesiastics. Two of the authors were connected with the United States Consulate in Jerusalem, and one of them with the Palestine Exploration Society in that city. In this country one is well known as a lecturer on Bible lands, and another is connected with the daily papers of New York City.

INCLUDING

A Chapter on Miracles and a Scientific Examination of the Theory of Endless Punishment.

The tenets and dogmas, precepts and doctrines of the various creeds of that age are expressed or enunciated by the actors, as the condition of things and events that surround them require.

NEW YORK:
INDUSTRIAL PUBLICATION
COMPANY.

BIRMINGHAM (ENG.),
E. CHEATLE,
162 CLIFTON ROAD, MOSELEY.

1894.

Phil 8640.10
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Suppliment

"The truth is, that science and religion neither are nor can be two fields of knowledge with no possible communication between them. Such an hypothesis is simply absurd.

"There is undoubtedly an avenue leading from the one to the other; but this avenue is through the unseen universe, and, unfortunately, it has been walled up and ticketed with '*No road this way*,' professedly alike in the name of science at the one end, and in the name of religion at the other."—"The Unseen Universe." By Professors Stewart and Tait, of Edinburgh University.

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PREFACE.

HELL has furnished a subject of sublime but horrible grandeur to the poets; of coarse jest and blasphemous ribaldry to men of low instincts; of soul-stirring description to the fanatic, and of deep and earnest thought to the student and the philanthropist; but I am not aware that it has ever been handled from a strictly scientific standpoint. This I have endeavored to do in the following pages.

I have no sympathy with those who, like the dean described by Pope, never call things by their common names

“Nor ever mention hell to ears polite.”

In discussing the subject, I have used the old English word, *Hell*, in preference to *Sheol*, *Hades* or *Gehenna*. Unless there is some sound reason, deeper than mere squeamishness, it is always best to call a spayed, a spayed.* Now, the use of the word hell avoids all special theories. It signifies merely the *hidden place*. (See Skeat's Etymological Dictionary, under the word *Hell*.) It is true that theories, or rather hypotheses, innumerable have clustered around the word and the ideas connected with it, but they are mere excrescences, and have little claim to our serious attention. The revisers of the English Bible did not uncover any of the secrets of hell by changing the name to sheol.

The ideas involved in the Christian doctrines connected with hell and redemption have been sad stumbling blocks in the path of many earnest seekers after the truth. The author has some faint hopes that the side light thrown on the subject from a purely scientific standpoint may smooth some of these difficulties and straighten some of the crooked paths.

JOHN PHILIPSON.

* The word here used is sometimes, in this connection, spelt *spade*—a form which entirely destroys the significance of the expression. It requires no courage, either moral or literary, to call a “spade” a “spade.” But in regard to the term *spayed* it is different. At one time a certain class of women were spayed for immoral purposes, and such women were called “spayeds” by those who spoke plainly and did not employ euphemisms.

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INTRODUCTION.

WHEN the old philosophers applied to the Universe around them the term COSMOS, it was evidently from a feeling that all nature is so linked together that it forms one homogeneous whole, and modern science, with every new extension of our knowledge, only confirms the intuitions of these far-seeing thinkers.

An Owen takes the fragment of a tooth, and from its structure elaborates the characteristics of the entire animal. An Agassiz requires to see but the scale of a fish to be able to decide all the most important points in regard to its place in nature. And a modern poet has expressed the same idea more distinctly, carrying the thought to its furthest limit:

“ Flower in the crannied wall,
I pluck you out of the crannies:—
Hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.”

But there is a reverse as well as an obverse side to this great truth. It was only by the study of many different teeth and many different scales that these minute parts were compelled to yield their secrets and to disclose their general relations; and to the same extent is it true that if we would understand fully any one of the special relations of man to the universe and to the Creator we must study every possible relation. An intelligent discussion of hell would involve a consideration of the grounds for a belief in the existence of a Deity and in man's immortality. Such a discussion would carry us far beyond the limits which have been assigned to this volume, and, therefore, we shall assume the existence of a Deity and the reality of a future life. If there be no God and no life beyond the grave, then hell is a myth, and future pains and pleasures a mere will-o'-the-wisp which amuses and tantalizes us during the few short hours that comprise our intellectual life.

These assumptions, however, cannot be called extravagant.

A pretty wide acquaintance with the expressed thoughts of scientific men has led me to believe that it is only the sciolists and those of coarse mental fiber whose faith is bounded by mere materialism. The true "lights of the world and demigods of fame"—Newton, Davy, Faraday, Herschel, Owen, Agassiz,

Gray—did not so think. The authors of “The Unseen Universe”—Stewart and Tait, two of the foremost scientists of Great Britain, write thus :

“We endeavor to show in fact that immortality is strictly in accordance with the principle of Continuity (rightly viewed); that principle which has been the guide of all modern scientific advance. As one result of this inquiry we are led, by strict reasoning on purely scientific grounds, to the probable conclusion that a life for the unseen, through the unseen, is to be regarded as the only perfect life.”

It was not to men like these that Campbell addressed his famous lines :

“Are these the pompous tidings ye proclaim
Lights of the world and demigods of Fame?
Is this your triumph—this your proud applause,
Children of Truth and champions of her cause?
For this hath Science searched, on weary wing,
By shore and sea—each mute and living thing?
Launched with Iberia’s pilot from the steep,
To worlds unknown, and isles beyond the deep?
Or round the cope her living chariot driven,
And wheeled in triumph through the signs of Heaven?
Oh! star-eyed Science, hast thou wandered there,
To waft us home the message of despair?
Then bind the palm, thy sage’s brow to suit,
Of blasted leaf, and death-distilling fruit!
What is the bigot’s torch, the tyrant’s chain
I smile on death, if Heavenward HOPE remain!

But if the warring winds of Nature's strife
Be all the faithless charter of my life,
If Chance awaked, inexorable power,
This frail and feverish being of an hour
Doomed o'er the world's precarious scene to sweep,
Swift as the tempest travels o'er the deep,
To know delight but by her parting smile,
And toil, and wish, and weep a little while;
Then melt, ye elements, that formed in vain
This troubled pulse, and visionary brain!
Fade, ye wild flowers, memorials of my doom,
And sink, ye stars, that light me to the tomb!"

It is obvious that in dealing with a subject such as that under discussion, positive statements are out of the question; possibilities and probabilities are all that we can look for. But these are not by any means to be despised. Many of the objections to the accepted doctrines of Revelation are based upon alleged scientific impossibilities. This is notoriously the case in the writings of Buchner, Ingersoll* and others; but the careful student of science finds on examination that the positive assertions made by these writers owe their positiveness to the ignorance, and not to the knowledge of their authors.

*For a simple but irrefragable demonstration of the profound ignorance of R. G. Ingersoll in regard to the most elementary scientific truths, see the *Young Scientist* for November, 1881.

THE NATURAL HISTORY OF HELL.

CHAPTER I.

The Correlation of the Human Mind and the Laws of the Physical Universe.

“So God created man in His own image.”—*Genesis i, 27.*

ONE of the most sublime subjects of contemplation is the relation which the mind of man bears to those laws according to which the phenomena of the physical universe occur. This correlation is most clearly seen in the power which man possesses of comprehending the constitution of nature, and of following out the forces at work, and the laws according to which these forces act; and the extent to which man has succeeded in tracing, not only the *How*, but, to a certain extent, the *Why* of the physical phenom-

ena around him, is something marvelous. Even in ancient times, long before the recent wonderful development of physical science, the old Greek philosophers were so deeply impressed with a sense of the correlation between the mental constitution of man and the existing order of things—the Cosmos—that they were led to call man the MICROCOSM—the *little Universe*, in which the great Universe is reflected.

It is the power of looking beyond the near and the present that forms one of the chief factors in that progress towards a knowledge of nature which has, in recent times, been so marked and so rapid, and to which the name of Science is given. This knowledge is reached step by step, fallacies and errors being eliminated as we go along, until, at the present time, our power to look into the future far exceeds anything that could have been dreamed of by the old philosophers, and may almost be compared to the gifts of the prophets of old.

In working towards such knowledge, superficial appearances and unreal though striking impressions are cleared away, and nature stands out in her actual truth and beauty. Of this perhaps no more impressive illustration is to be found than that offered by the history of our knowledge of the causes of day and night, and of the eclipses. Even within the historic period, men who saw the sun rise in the east and set in the

west, supposed that this luminary was a huge lamp that traveled through the sky, and after passing underneath the vast expanse which we call the world, reappeared to go again over the same journey. Now this is the obvious impression which the appearance of the sun, and the alternation of day and night, make on the untutored mind, and no amount of mere observation of the simple occurrence of day and night could ever teach us anything to the contrary.

But in addition to his power of mere observation, man has a yearning desire to know the *how* and the *why* of these phenomena, and it does not take a great deal of earnest study to prove that his first idea in regard to the motion of the sun and the fixity of the earth is an erroneous one. He finds that, so far at least as its relation to day and night is concerned, the *sun* is a fixture, and that the *earth* revolves on its axis once in every twenty-four hours. Further study makes new and important additions to his knowledge, and, finally, the whole system of modern astronomy is evolved and established on sure foundations, so that he who has carefully and intelligently studied it, is enabled to grasp the true position and motions of the heavenly bodies. To the eye of the dog as he bays the moon, the heavens probably appear to be a vast expanse covered with glittering points. To the savage, as he employs the north star to direct his

passage through the forest, the stars seem to be twinkling lights, studding the heavens with fantastic shapes, and serving merely to yield a dubious and feeble light in the absence of the sun and moon. To the "mind's eye" of the astronomer, as he contemplates the blue expanse, the heavens are unfolded in all their vast proportions, and instead of a confused collection of sparkling points he sees enormous suns wheeling through space, and carrying in their train innumerable worlds, whose variety of structure and character is all but infinite. *He sees creation as the Creator saw it from the beginning and sees it now*, and he asserts his God-given birthright and lives, the image of his Maker.

The same rule holds good in regard to our knowledge of the materials lying around us. The uneducated laborer turns over the soil and sees in it nothing but a mass of earth in which he may grow potatoes, and in which he himself will be buried when he dies. The chemist sees in this same earth a complex mixture, and beneath the surface of the coarse, dull clod his mental vision beholds a bright and glittering metal which forms a large portion of the clayey mass, and which is remarkable for its beauty and usefulness.

The savage finds a piece of red ochre, and to him it is merely a paint with which he may further disfigure his already hideous features; of its structure and com-

position he knows nothing. On the other hand, the chemist sees it as the Creator sees it; in every molecule he sees a bright, hard metal, and by appropriate means he is enabled to separate this metal from the other matters with which it is united. To the savage the crude ochre was of no use, except as a coarse paint; civilized man frees its constituent metal from dross and impurities, and then with it he girdles the globe with a pathway for sublime thought and useful news; or he converts this metal into a highway, on which men and goods may be transported to and from the ends of the earth with a speed the story of whose realization seems more like the imaginings of a fairy tale than the sober statement of actual achievement.

But it is not only in regard to the present, the *now*, that man has this power of insight;—he can look into the future and see the wonders that *will* be as well as those that are. He has acquired such a clear and sound view of the motions of the heavenly bodies that their positions for years to come are known as accurately as those of the present hour. Pointing down the long vista of the ages, it may be for thousands of years, he marks a certain hour and minute, and declares that at that time the sun will be eclipsed. When that time comes, the astronomer himself will have passed away from the abodes of living men, and his material frame will have moldered in the dust;

but if we could be there to see, we would find that the eclipse will take place just at the time and to the extent that was predicted. No student of science doubts this statement. Past experience, covering hundreds of cases, amply proves its truth.

And in other directions the same thing holds true. The inventor works out in his mind the arrangement of a new machine, and before a line has been drawn, a fire lit or a hammer raised, he has the construction of the machine developed in his mind, and he knows just what the apparatus will accomplish.

We are told that one of the characteristic manifestations of power by God Himself is that He declares "the end from the beginning, and from ancient times the things that are not yet done."* Man, who was created in His image, is likewise able in many cases to "declare the end from the beginning." This is a God-like attribute.

To a certain class of minds this singular harmony and correlation receives an obvious, ample and simple explanation in the sentence which we have taken as a motto for this chapter.

* Isaiah xlii, 10.

CHAPTER II.

The Scope and Present Limit of Physical Science.

“And this gray spirit yearning in desire
To follow knowledge like a sinking star,
Beyond the utmost bound of human thought.”

—*Tennyson.*

THE word *science* is simply the English form of the Latin word for knowledge. We sometimes hear or read of “scientific knowledge”—an expression which savors of tautology, and has its origin in the fact that the term *science* is now applied almost wholly to a knowledge of either the nature and relations of those materials and phenomena of which the universe around us, and its movements, are the embodiment, or of those abstract conceptions for which we depend largely upon mental processes alone, and of which pure mathematics are the most prominent representative.

Various definitions have been given of science, one of the best being that of Sir J. F. W. Herschell, who says: “Science is the knowledge of many, orderly and methodically digested and arranged, so as to become attainable by one.”

In the language of Jevons : " All science consists in the detection of identities in the action of natural agents." Or, as he expresses it in another passage : " Science arises from the discovery of Identity amidst Diversity."

It is always difficult to give a sharp and accurate definition of any term, and in the present case such a definition is not absolutely necessary. It is sufficient to say that by science we mean a sound knowledge of the nature and course of action of the various physical agents by which we are surrounded, and it is obviously of the utmost importance that we should clearly understand the ground upon which this knowledge rests ; the limits which bound our insight into the ultimate nature of things, and the fallacies, both mental and physical, to which we are exposed. With the metaphysical subtleties involved in the question of whether we have any knowledge at all or not, we have nothing to do. We propose to look at the matter from a common sense, every-day standpoint.

All science is the result of questioning, and the range or scope of those investigations or questionings which lead to accessions to our knowledge is unlimited. It extends from the outer confines of the universe—from the most distant stars to the tiny plant growing in the cranny of a wall, and from the crude and inert grains of soil, or as some would call

them, dirt, to the workings of the human intellect, which "comprehends the heavens,"—nay to a knowledge of God Himself.*

In his "Preliminary Discourse on the Study of Natural Philosophy," Herschell divides Science into two departments. His words are :

"The knowledge of reasons and their conclusions constitute *abstract*; that of causes and their effects, and of the laws of nature, *natural science*.

"Abstract science is independent of a system of nature—of a creation—of everything, in short, except memory, thought and reason. Its objects are, first, those primary existences and relations which we cannot even conceive not to *be*, such as space, time, number, order, etc., and, secondly, those artificial forms, or symbols, which thought has the power of creating for itself at pleasure, and substituting as representatives, by the aid of memory, for combinations of those primary objects, and of its own conceptions, either to facilitate the act of reasoning respecting them, or as convenient deposits of its own conclusions, or for their communication to others."

Natural science is a thing of but yesterday. Four hundred years have not passed since the discoveries of Copernicus were made; Gallileo died in 1642, and

* "Theology a Science." "Hodge's Systematic Theology," Vol. I, page 1.

Newton's *Principia* was published in 1687—a little more than two hundred years ago. Chemistry is a science still more youthful. A little more than a hundred years ago marks the commencement of chemistry as a science. The treatises published at the commencement of this century were almost barren of those great truths which have elevated chemistry above the level of a mere art. The great discoveries of Davy, Dalton, Faraday and a host of others were made when the century was well advanced. Within the memory of living men, the science has grown from a trifling collection of facts which might have been easily contained in one volume, to such proportions that the mastery of what is known in any one of half a dozen departments affords ample employment for any ordinary intellect.

The same is true of Botany and Zoology, to say nothing of Geology. The “Natural History” of Pliny was a very different science from that which has been elaborated by Linnæus, Cuvier, Agassiz, Owen and other laborers in this field; and yet that we stand but on the threshold of the temple of nature is acknowledged by all who have given any thought to the subject. What glorious views must await us when we have secured full and free admission beneath the dome!

The basis of all natural science consists of those

facts which are made known to us through the agency of our senses. It is true that a mere miscellaneous collection of facts cannot be dignified with the name of science, any more than a pile of stone and lumber could be called a building; but the building never could be erected if the stones, lumber and other materials were not first collected; and in the same way it would be impossible to attain to anything in the nature of science without first collecting those necessary facts, for a knowledge of which we must depend upon our senses either directly or indirectly.

The power of our senses, both as regards delicacy and accuracy, has been greatly increased by the aid of instruments, some of which have revealed to us things which otherwise would have remained forever concealed. Thus, the telescope has enabled us to penetrate space to such an extent that stars which, on account of their distance, were utterly invisible are now brought into view, and the nearer celestial bodies, such as Mars, Jupiter, Saturn, etc., which to the ordinary vision merely show a little brighter and steadier light than the others, are so clearly seen that many points in their structure have been made out with tolerable fullness and certainty.

On the other hand, turning from the distant to the near, the microscope has revealed to us a new world of otherwise invisible objects to such an extent that it

has been well said that what eyes would be to the man who had been born blind, the microscope is to the man who can see. The extent of the assistance which we have derived from this instrument can hardly be realized by those who have not used it; but the following illustrations may give a faint idea of its wonderful revelations.

To the ordinary unaided vision, lines placed as close together as two hundred to the inch are invisible to all but the very best of eyes.* The best microscopes show clearly lines placed as closely together as one hundred and fifty thousand to the inch. This multiplies the power of the eye at least seven hundred and fifty times. With such a visual power, objects which appear to be perfectly homogeneous and structureless are seen to have a wonderfully complex structure; and in the case of living objects, the movements of the several parts are brought within the range of actual observation. Thus, the blood can be seen flowing through the capillaries, as it carries life and new material to every part of the structure, and removes old and effete matter. Certain grains of sand from the sea shore, which to the naked eye appear to be almost impalpable dust, are seen, when sufficiently magnified, to be the remains of living creatures, and

* "How to Use the Microscope." By John Lubbock. Sixth edition, page 103.

they show a structure which for beauty and delicacy far exceeds the carving and tracery of the most exquisite works of art. More wonderful still: When we examine certain liquids we find them to be inhabited by living and fully organized creatures, millions of which might find a habitation in a single drop of water! These animals take in food, digest it, convert it partly into carbonic acid and, in short, perform all the vital functions of the larger animals.

But these revelations, marvelous as they are, are evidently secured by merely *extending* the powers at present possessed by our senses. The dead skeletons and living animals which we have mentioned, although invisible to *our* eyes, would be visible to other eyes constructed in precisely the same way that ours are formed, but much more delicate. There are other instruments, however, the spectroscope and the polariscope, for example, which enable us to see that which would be absolutely invisible to any eye constructed as are ours, no matter how delicate and powerful that eye might be. No unaided vision could detect those characteristics of light which the spectroscope reveals, and which enable us to see, for example, whether the combustion which gave origin to this light involved the presence of iron, sodium or other elements. So, too, the polariscope reveals to us differences of structure which no unaided vision could possibly discover;

and in this way these two instruments may be said to serve as *new senses*, for certainly the *revelations* of the spectroscope and the polariscope are as marked and as distinct from those of ordinary vision as the revelations of ordinary vision are from those of the sense of touch. It is true that the ultimate result is attained through the use of our ordinary organs of vision, and, consequently, as a matter of fact, there is no addition made to the range of our personal power of perception. But the actual result is to give us the aid of that which is equivalent to a new sense.

As another example of an instrument which may almost be said to be an artificial sense, let us take the case of the galvanometer or galvanoscope. I have before me two stout copper wires, both cut from the same coil and alike in every respect, so far as careful manufacture goes—at least my senses can detect no difference in any respect whatever. But I bring an ordinary pocket compass near one, and the needle at once swings round and no longer points in the usual direction. I bring it near the other and no effect whatever is produced. I know, therefore, that through the first wire there is passing what is called a current of electricity, while none is passing through the second. Why, then, is not this needle a sort of artificial sense which enables me to obtain sensible evidence of the presence of the electrical current? This evidence

is indirect, it is true ; but then all the evidence of our senses is indirect. When we see or feel any object, that object does not make a *direct* impression even on the brain, far less on the mind. The impression is made only after a tedious series of telegraphic signals, which occupy considerable time and whose velocity has been measured. In his very interesting work on the senses, Dr. Bernstein thus describes the process :

“The sensory organs are, therefore, only instruments of the mind, which has its seat in the brain, and by means of nerves makes use of these instruments to obtain information of external objects. The forces which operate in the outer world, namely, light, heat, sound, motion and chemical affinity, produce in the sensory organs an irritation of the sensory nerves connected with them, and these convey the irritation which is there received throughout their entire length to the brain. Each organ of sense has its own specific irritation by which it is excited. The termination of the optic nerve in the eye can only be excited by light-waves, not by sound-waves, and the latter can only excite the terminations of the auditory nerve in the ear. For the tactile nerves of the skin mechanical pressure and heat are specific excitements ; for the nerves of taste and smell some chemical substance is necessary.

“The *sensation* itself evidently first takes place in the brain. The *sensation of light* does not take place

in the eye where there is only an impression of light upon the expanded surface of the optic nerve; the sensation of light cannot, however, take place in the optic nerve itself, for it merely conveys the fact of the existence of the irritation to the brain. The *sensation of light*, a process to us most obscure, begins rather in the brain, which is irritated by the excited nerve; and since we can follow the optic nerve up to its origin in the brain, we therefore conclude that this process is in the central organ of the optic nerve.

“The eye, therefore, is nothing more than an optical instrument which receives the light, and the optic nerve nothing more than an apparatus for conveying the intelligence of an irritation to the brain. It has been observed in operations that if the optic nerve is either torn, crushed, or even severed, at the moment when it is broken a strong flash of light is observed by the patient. This light is not real, for it is only perceived by the person under operation. The sensation of light arises merely from the mechanical irritation of the optic nerve, and from the extension of the irritation to the nerve-center, where it awakens the process of the sensation of light, just as if the excitement had proceeded from the eye. In such cases, the sensation of light occurs without any external objective light, and always takes place if the optic nerve is irritated in any way whatever by those influences

which have an irritating effect on other nerves, such as electricity, heat and chemical action. Objective light, that is to say, the light-waves of the ether, takes no part in this action; it may therefore be accepted as a fact that in ordinary vision no trace of the light which enters the eye finds its way to the brain, but only a process of irritation peculiar to the nerve, and which can be produced in the nerve-trunk by pressure, electricity, heat and chemical action, just as well as in the eye by light. In whatever way the irritation may have been caused, the process in the optic nerve is always the same, and the action on the nerve-center always produces the sensation of light. It must be exactly the same with the other sensory organs and their nerves. A sound does not extend beyond the auditory nerve, and none of it is conveyed to the brain by the auditory nerve. The nerve, which is excited at its termination, communicates its condition to the brain, and causes in the center of the auditory nerve the *sensation of sound*.

“The sensation of sound, therefore, can take place without a sound-wave reaching the ear, if only the auditory nerve is in any way excited, whether it be by pressure, rupture, electricity, etc. Thus the irritation which, in the center of the auditory nerve, causes the sensation of sound, always takes place in the nerve.”

These truths are so simple and obvious that they

require but to be stated in order to command our assent. All our knowledge of the physical world therefore really consists of conclusions or deductions, and not of absolute knowledge obtained from direct contact with nature. And yet we rely upon these conclusions in our everyday practical life with a faith which sets the subtle doubts of the metaphysician at defiance, and we risk our persons and our property in full faith upon the knowledge we have acquired through deductions based upon the facts conveyed to us in this roundabout way through our senses.

But if our knowledge of the materials themselves has been obtained in an indirect way, much more is this true in regard to the actions and relations of these materials and the forces which act upon them. Of the ultimate nature of the great forces or powers we know absolutely nothing. We know them only by the effects which they produce and the changes to which they give rise. We know that the apple falling from the tree is impelled downward by a force to which we have given the name of gravitation, and of which we have measured the power and examined the relations, and we have even succeeded so far as to find out the laws according to which it acts, and to demonstrate with almost absolute certainty that the same force which draws the apple downward holds the earth in its course round the sun, and the sun in its course

through space. The same is true of other forces—light, heat, electricity, magnetism, chemism. Of their ultimate nature we know nothing; of their modes of action we know much; and it is worth noting that while mere views and explanations have changed, the great facts upon which science is based have suffered no change.

The hypothesis of a separate galvanic fluid has been abandoned by all scientific thinkers; but the galvanic battery has not lost its efficiency, and the facts connected with it are as true now as when Volta constructed his first pile. We are yet but in the infancy of science, and our knowledge will undoubtedly be widened, partly by deductions from more extended observations and, possibly, by altogether new knowledge obtained through more perfect, if not entirely new, senses; but it is as certain as anything can be, that the great truths which we accept as positive science, rest on firm and immovable foundations, and that we have pretty clear ideas as to the boundary line between what we *know* and what we only *surmise*.

CHAPTER III.

The Reign of Law.—Cause and Effect.

“Has Hell itself its Laws, then?”—*Faust.*

AN ancient poet tells us that Law is the Ruler of the Immortals as well as of the Mortals, and that the gods themselves are subject to the Laws which they have called into action. Modern materialists, without the excuse of poetic license, assert that Law leaves no place for a Creator; that in their minds Matter, Force and Law have taken the place of what has hitherto been called God. To these men Life is merely a special manifestation of chemical affinity, electricity and other forces and properties of matter, and Intelligence is a nonentity, except as a mere mode, form or manifestation of organization. Man is merely a pailful of water and a few ounces of carbon, nitrogen, phosphorus, sulphur and some other elements, the whole being so arranged and organized under certain physical laws as to give those manifestations of Intelligence with which we are all familiar. In other words, this water, carbon, etc., with the aid of certain laws, has the power to create Mind.

This is certainly not a caricature of the Creator worshipped by Buchner and Ingersoll.

The term *law*, as here used, seems to me singularly unfortunate, because it conveys to the ordinary mind an idea of arbitrary legislation which certainly has no place in the economy of nature. That I am not alone in this feeling is shown by the following passage from the work of a standard author: "A law of nature, as I regard the meaning of the expression, is not a uniformity which must be obeyed by all objects, but merely a uniformity which is, as a matter of fact, obeyed by those objects which have come beneath our observation." *

In other words, the term *law* is, in many cases, applied to what is simply the *mode of action* of certain forces. Thus, the fundamental law of gravity is that the attraction of two bodies is directly proportional to the masses and inversely to the squares of the distances. Now, this law when analysed is found to be merely an expression of the mode of action of the force of gravity, as is obvious when we state the law in common language.

Thus, to say that the attraction is directly as the mass, is simply to say that twice the quantity of any material will weigh twice as much as the original

* Jevons, "The Principles of Science," page 737.

quantity, and this still further reduces itself to the statement that two added to two make four.

On the other hand, the law which is said to *govern* the relation of distance to attraction is simply the statement that a surface having twice the length and twice the breadth of another surface has four times the area of the latter, and, further, that if we spread a given force over four times the area over which it was formerly spread, it will act with just one-fourth of the original intensity.

When reduced to this simple form, it is seen that these so-called *laws* are merely the mathematical expressions of certain modes of action, and that they rest on certain fundamental truths which we cannot conceive to be otherwise than as they are.

The example which we have chosen is very simple, and can be understood by any one. There are others, however, which are not so obvious, except to those who have carried their studies further than the elementary rules of arithmetic. For example: Every beginner in geometrical studies knows that the three angles of every plane triangle are equal to two right angles, and it would be impossible for him to conceive of a condition of things in which this would be otherwise. To adopt an expression of John Stuart Mill, in a somewhat similar case, such a condition of things is not only inconceivable to us, "*but we cannot conceive*

that it could be made conceivable." Jevons even goes so far as to say that "we cannot conceive that even Omnipotent power should make the angles of a triangle greater than two right angles."

It is true that some writers have claimed the ability to imagine a condition of things under which two added to two might make five. We confess that such a condition is utterly beyond our powers of conception.

The writers referred to probably base their conclusions on the apparent fact that amongst the higher fundamental truths there are those in regard to which their minds seem able to form a different conception. This evidently arises, however, from the fact that they are not fully able to grasp the scope of the proposition which they have under consideration—just as a child would find no difficulty in *thinking* that it could conceive of a triangle whose angles should be greater or less than two right angles; the fact being that the entirely untrained mind does not form any adequate conception of the conditions in this case.

Probably the most striking illustration of this is to be found in the suggestion of the so-called "fourth dimension," about which those who claim to be transcendentalists are so fond of speaking. The expectations which this idea holds out to the untrained mind are very well shown in the following extract from a recent writer :

“There is another idea which modern science has been familiarizing us with, and which is bringing us towards the same conception—that, namely, of the fourth dimension. The supposition that the actual world has four space-dimensions instead of three makes many things conceivable which otherwise would be incredible. It makes it conceivable that apparently separate objects, *e. g.*, distinct people, are really physically united; that things apparently sundered by enormous distances of space are really quite together; that a person or other object might pass in and out of a closed room without disturbance of walls, doors or windows, etc.; and if this fourth dimension were to become a factor of our consciousness it is obvious that we should have means of knowledge which to the ordinary sense would appear simply miraculous. There is much, apparently, to suggest that the consciousness attained to by the Indian gñānis in their degree, and by hypnotic subjects in theirs, is of this fourth dimensional order.

“As a solid is related to its own surfaces, so, it would appear, is the cosmic consciousness related to the ordinary consciousness. The phases of the personal consciousness are but different facets of the other consciousness; and experiences which seem remote from each other in the individual are perhaps all equally near in the universal. Space itself, as we

know it, may be practically annihilated in the consciousness of a larger space, of which it is but the superficies; and a person living in London may not unlikely find that he has a back door opening quite simply and unceremoniously out in Bombay." *

That one conception (?) which is confessedly inconceivable should enable us to form a conception of another condition which is also inconceivable is an idea which only a pseudo-thinker could entertain.

We must not infer from this, however, that because a condition is inconceivable to us, therefore it is impossible. There have been many instances of notable minds that had not the power to form a conception of conditions that to others were simple and obvious. This is well seen in the case of Buckle, who wrote two ponderous volumes to show how the character of a nation might be explained by the nature of the climate and the fertility of the soil, though, as Jevons has pointed out, "he omitted to explain the contrast between the ancient Greek nation and the present one; there must have been an extraordinary revolution in the climate or the soil." But although Buckle had sufficient confidence in himself to lead him to attack such a complex problem and to attempt a solution which claims to be thoroughly "scientific," he actu-

* "From Adams' Peak to Elephanta." By Edward Carpenter. Page 160,

ally shows himself to be unable to conceive of a line without breadth—a conception which thousands of boys have found no difficulty in grasping. He therefore asserts that there are no lines without breadth, and comes to the following rather strange conclusions: “Since, however, the breadth of the faintest line is so slight as to be incapable of measurement, except by an instrument used under the microscope, it follows that the assumption that there can be lines without breadth is so nearly true that our senses, when unassisted by art, can not detect the error. Formerly, and until the invention of the micrometer, in the seventeenth century, it was impossible to detect it at all. Hence, the conclusions of the geometrician approximate so closely to truth that we are justified in accepting them as true. The flaw is too minute to be perceived. But that there is a flaw appears to me certain. It appears certain that, whenever something is kept back in the premisses, something must be wanting in the conclusion. In all such cases, the field of inquiry has not been entirely covered; and, part of the preliminary facts being suppressed, it must, I think, be admitted that complete truth be unattainable, and that no problem in geometry has been exhaustively solved.” *

* “History of Civilization in England.” American edition, Vol. II, p. 342.

The fallacy which underlies Mr. Buckle's reasoning is simple and obvious. If it be conceded that lines *have* breadth, then all we have to do is to assign some definite breadth to each line—say the one-thousandth of an inch—and allow for it. But the lines of the geometer have no breadth. All the micrometers of which Mr. Buckle speaks depend, either directly or indirectly, upon lines for their graduations, and the positions of these lines are indicated by rulings or scratches. Now, in even the finest of these rulings, as, for example, those of Nobert or Fasoldt, where the ruling or scratching, together with its accompanying space, amounts to no more than the one hundred and fifty thousandth part of an inch, the scratch has a perceptible breadth. But this broad scratch is not the *line* recognized by the microscopist, to say nothing of the geometer. The true line is a line which lies in the very center of this scratch, and it is certain that this central line has absolutely no breadth at all.

But there are conditions which might have been other than what they are without apparently doing violence to any necessary truth. For example: It might easily have happened that the force of gravity might have been either one-half or double what it now is. So far as our present knowledge goes, there is nothing inconceivable in this, and, further, it is not

inconceivable that the Creator might at any moment cause an alteration in this respect. The force of gravitation might even be entirely abrogated, or its action changed from attraction to repulsion, without, so far as we at present know, doing violence to any *necessary* conception. This thought assumes important bearings in a future chapter when we come to consider the extent to which natural laws may be miraculously suspended.

The expression, "The Reign of Law," has of late years become a favorite one amongst a certain class of writers, and if the ideas which it is allowed to convey are kept within proper bounds, it is both appropriate and effective. But on most minds it has an effect greater than the reality will warrant, and many persons speak of *law* when they mean *force*. Now, laws are the most shadowy and unsubstantial of all entities, if entities they may be called. We might speak of a law as Milton spoke of Death :

" If shape it might be call'd that shape had none
Distinguishable in member, joint or limb,
Or substance might be call'd that shadow seem'd,
For each seem'd either."

A law of itself has no power to move a grain of sand, while the force of gravitation sends worlds whirling through space as if they were billiard balls. The unseen and, so far as our senses are concerned,

the unfelt power of gravitation holds the earth in its orbit and binds it to the sun with a force which, if replaced by iron rods, would require more than sixty rods, each having a section of one square inch, on every square foot of the earth's surface that is exposed to the sun.* But this mighty power owes its efficiency to the attraction itself, and not to the mere mode of its action.

Hume was undoubtedly right when he said that "there are no ideas, which occur in metaphysics, more obscure and uncertain than those of power, force, energy or necessary connection." In other words, of cause and effect; and he also says: "It appears that, in single instances of the operation of bodies, we never can, by our utmost scrutiny, discover anything but one event following another, without being able to comprehend any force or power by which the cause operates, or any connection between it and its supposed effect."

That we are utterly unable to follow the connection between cause and effect is beyond question, but it does not follow that therefore there is no such connection. We are entirely unable to discover the ultimate nature of gravitation, but we know well that there is such a power, and if we wish a convincing proof of its

* Prof. Chas. A. Young.

existence all we have to do is to throw ourselves from some high building to the ground.

Our consciousness so imbues us with the idea of the indissoluble connection between cause and effect, and our experience so fully and strongly confirms our innate impressions that every reasonable act of our lives is governed by the belief in the certainty that the effect is governed by the cause. And in science it is the same. One of the greatest minds that the world has ever produced thus states the universality of the action of causes in producing effects:

“We ought, then, to regard the present state of the universe as the effect of its preceding state, and as the cause of that which is to follow.

“An intelligent being that for a given moment could fully know and understand all the forces which are active in nature, and the respective situations of the particles which compose it; if, besides, this intelligence was capable of submitting these data to an analysis which should embrace in the same formulæ the movements not only of the largest bodies of the universe, but those of the smallest atoms, nothing would be uncertain to it, and the future as well as the past would be present to its vision.

The human mind presents, in the perfection with which it has attained a knowledge of astronomy, a weak outline of this intelligence. Its discoveries in

mechanics and in geometry, combined with those of universal gravitation, have enabled it to comprehend in the same analytical expressions, the past and future states of our own system.

“In applying the same method to other objects of knowledge it has succeeded in bringing the observed phenomena under general laws, and has foreseen those which the given conditions ought to disclose. All its efforts in the search after truth tend to approach without ceasing to the intelligence which we have just conceived, but from which it must always remain at an infinite distance.” *

Another thinker, writing in the same strain, gives a still more startling picture of the chain of physical sequences exhibited in the material world:

“The principle of the equality of action and reaction, when traced through all its consequences, opens views which will appear to many persons most unexpected.

“The pulsations of the air, once set in motion by the human voice, cease not to exist with the sounds to which they give rise. Strong and audible as they may be in the immediate neighborhood of the speaker, and at the immediate moment of utterance, their quickly attenuated force soon becomes inaudible to

* Laplace—“*Theorie Analytique des Probabilités*.”

human ears. The motions they have impressed on the particles of one portion of our atmosphere, are communicated to constantly increasing numbers, but the total quantity of motion measured in the same direction receives no addition. Each atom loses as much as it gives, and regains again from other atoms a portion of those motions which they in turn gave up.

“The waves of the air thus raised perambulate the earth and ocean’s surface, and in less than twenty hours every atom of its atmosphere takes up the altered movement due to that infinitesimal portion of the primitive motion which has been conveyed to it through countless channels, and which must continue to influence its path throughout its future existence.

“But these aerial pulses, unseen by the keenest eye, unheard by the acutest ear, unperceived by human senses, are yet demonstrated to exist by human reason; and, in some few and limited instances, by calling to our aid the most refined and comprehensive instrument of human thought, their courses are traced and their intensities are measured. If man enjoyed a larger command over mathematical analyses, his knowledge of these motions would be more extensive; but a being possessed of unbounded knowledge of that science could trace every, even the minutest, consequence of that primary impulse. Such a being, however far exalted above our race, would still be

immeasurably below even our conception of infinite intelligence.

“But supposing the original conditions of each atom of the earth’s atmosphere, as well as all the extraneous causes acting on it to be given, and supposing, also, the interference of no new causes, such a being would be able clearly to trace its future, but inevitable, path, and he would distinctly foresee, and might absolutely predict for any, even the remotest, period of time, the circumstances and future history of every particle of that atmosphere.

“Let us imagine a being, invested with such knowledge, to examine at a distant epoch the coincidence of the facts with those which his profound analysis had enabled him to predict. If any, even the slightest, deviation existed, he would immediately read in its existence the action of a new cause; and, through the aid of the same analysis, tracing this discordance back to its source, he would become aware of the time of its commencement, and the point of space at which it originated.

“Thus considered, what a strange chaos is this wide atmosphere we breathe! Every atom impressed with good and with ill, retains at once the motions which philosophers and sages have imparted to it, mixed and combined in ten thousand ways with all that is worthless and base. The air itself is one vast

library, on whose pages are forever written all that man has ever said or woman whispered. There, in their mutable but unerring characters, mixed with the earliest as well as with the latest sighs of mortality, stand forever recorded, vows unredeemed, promises unfulfilled, perpetuating in the united movements of each particle, the testimony of man's changeful will.

"But if the air we breathe is the never-failing historian of the sentiments we have uttered, earth, air and ocean are the eternal witnesses of the acts we have done. The same principle of the equality of action and reaction applies to them: whatever movement is communicated to any of their particles is transmitted to all around it, the share of each being diminished by their number, and depending jointly on the number and position of those acted upon by the original source of disturbance.

"The waves of air, although in many instances perceptible to the organs of hearing, are only rendered visible to the eye by peculiar contrivances; but those of water offer to the sense of sight the most beautiful illustration of transmitted motion. Every one who has thrown a pebble into the still waters of a sheltered pool, has seen the circles it has raised gradually expanding in size, and as uniformly diminishing in distinctness. He may have observed the reflection of those waves from the edges of the pool. He may have

noticed also the perfect distinctness with which two, three or more series of waves each pursues its own unimpeded course, when diverging from two, three or more centers of disturbance. He may have seen that in such cases the particles of water where the waves intersect each other, partake of the movements due to each series.

“No motion impressed by natural causes, or by human agency, is ever obliterated. The ripple on the ocean’s surface, caused by a gentle breeze, or the still water which marks the more immediate track of a ponderous vessel gliding with scarcely expanded sails over its bosom, are equally indelible. The momentary waves raised by the passing breeze, apparently born but to die on the spot which saw their birth, leave behind them an endless progeny, which, reviving with diminished energy in other seas, visiting a thousand shores, reflected from each, and perhaps again partially concentrated, will pursue their ceaseless course till ocean be itself annihilated.

“The track of every canoe, of every vessel which has yet disturbed the surface of the ocean, whether impelled by manual force or elemental power, remains forever registered in the future movement of all succeeding particles which may occupy its place. The furrow which it left is, indeed, instantly filled up by the closing waters; but they draw after them other

and larger portions of the surrounding element, and these again, once moved, communicate motion to others in endless succession.

“The solid substance of the globe itself, whether we regard the minutest movement of the soft clay which receives its impression from the foot of animals or the concussion arising from the fall of mountains rent by earthquakes, equally communicates and retains, through all its countless atoms, their apportioned shares of the motions so impressed.

“Whilst the atmosphere we breathe is the ever-living witness of the sentiments we have uttered, the waters and the more solid materials of the globe bear equally enduring testimony of the acts we have committed.

“If the Almighty stamped on the brow of the earliest murderer the indelible and visible marks of his guilt, He has also established laws by which every succeeding criminal is not less irrevocably chained to the testimony of his crime; for every atom of his mortal frame, through whatever changes its severed particles may migrate, will still retain, adhering to it through every combination, some movement derived from that very muscular effort by which the crime itself was perpetrated.

“The soul of the negro, whose fettered body surviving the living charnel-house of his infected prison,

was thrown into the sea to lighten the ship, that his Christian master might escape the limited justice at length assigned by civilized man to crimes whose profit had long gilded their atrocity, will need, at the last great day of human account, no living witness of his earthly agony. When man and all his race have disappeared from the face of our planet, ask every particle of air still floating over the unpeopled earth, and it will record the cruel mandate of the tyrant. Interrogate every wave which breaks unimpeded on ten thousand desolate shores, and it will give evidence of the last gurgle of the waters which closed over the head of his dying victim: confront the murderer with every corporeal atom of his immolated slave, and in its still quivering movements he will read the prophet's denunciation of the prophet king." * †

While it is undeniably true that we know absolutely nothing of that mysterious bond which links every occurrence on the one hand to that which has preceded it, and on the other to that by which it is succeeded, it is certain that all the sciences and all the arts depend upon this connection. It is this that gives certainty to the work of the chemist in his laboratory, to the engineer in his work of construction, and to the farmer

* "And Nathan said unto David: 'Thou art the man!'"

† "Ninth Bridgewater Treatise." By Charles Babbage. Second edition. Page 108.

in his field; and it is really to this, rather than to forces or their modes of action, that men ordinarily refer when they speak of "the laws of nature." As has been said of another, but related, condition: "The passage from the physics of the brain to the corresponding facts of consciousness is unthinkable;"* nevertheless, we do not doubt that we think, and, further, that if the brain were destroyed, thinking, in the ordinary sense, would cease.

From this it follows that to the intellectual vision of an infinite being the whole universe would be clearly spread out, even in its most minute parts. Not only the present, but the past and the future, would appear in a perfect chain of sequence, and eternity would be present in all its completeness and all its harmony.

Theologians tell us that to God, Time and Eternity are one Eternal Now. Not that God *reasons* out the order of things as a finite intelligence would do; but to the eye of Omniscience they appear as a whole, "without beginning of years or end of days."

* Tyndall.

CHAPTER IV.

Possibility of a New Sense.

“Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love Him.”—*Paul*.

“Yet I doubt not through the ages one increasing purpose runs,
And the thoughts of men are widened with the process of the suns.”
—*Tennyson*.

IN that quaint old work by John Bunyan, “The Holie Warre,”—a work which many think is equal if not superior to his more famous “Pilgrim’s Progress”—we are told that the town of Man-soul had five gateways, in at which to come and out at which to go. And the names of these gateways were Eye-gate, Ear-gate, Nose-gate, Mouth-gate and Feel-gate.

Such is the allegory under which the marvelous tinker portrays our five senses. Nor shall we find fault with the list. If modern science has increased the number to that of the “sivin sinses” in which every old Irishwoman has an almost religious faith, it may have added to our knowledge but not to our power of perception. When we differentiate the “Sense of Heat” and the “Sense of Resistance” from the

"Sense of Touch" we may set up new signposts, but we do not open up any new "gateways;" things still remain as they were of old, and every messenger from the material world around us must enter the ivory palace of the skull through one of the old and well-known ways.

To drop metaphor: It is a fact that all our knowledge of the phenomena around us is derived directly or indirectly through the senses, and we cannot even form a conception of any physical knowledge that is not so obtained. If you don't believe it, just try it. Try to imagine a new sense, analagous to any one of our present senses, and see if you can succeed. You may possibly imagine some extension or refinement, or perhaps combination of perceptions which would extend our present powers, just as the telephone or the telescope or the polariscope extends them, but after all, the outcome is merely an extension of that which we already possess; it is nothing that is radically new, and it is impossible that it should be.

That the powers of our present senses might be readily extended is not at all impossible. Thus we know that in the wide range of possible sounds there are some which are audible to some ears while they are inaudible to others. And this does not arise from the fact that they are not *loud* enough, but from the circumstance that they are so *sharp* that the ear is not

affected by them. It is generally stated that the gravest audible musical sound is produced by about twenty vibrations in a second, while the sharpest audible sound is produced by about twelve thousand per second. The chirp of the cricket, and also that of the grasshopper, are to many persons inaudible, while to others they are quite distinct as musical sounds. A fine ear is able to recognize as a distinct sound, a peculiar hissing noise made by a body completing twenty-four thousand distinct vibrations in a second. To others such sounds are quite inaudible. And it may be that there are other sounds all around us which are higher yet. A sense-power which would enable us to recognize these would not be a mere increase of delicacy in our sense of hearing, but an extension of its range, which would bring to us perceptions quite unlike the old, just as the shrill note of the cricket is quite unlike the dull sound of the lowest organ pipe.

The same is true in regard to light and color. Ordinary eyes differ greatly in regard to the extent to which they perceive the colors at each end of the spectrum; and we know that the spectrum extends even beyond those which any ordinary eye can see. We can even form an artificial eye which will be affected by these extra rays. Now, it is not impossible that the power of our sense of sight might be so extended that these extra rays would affect us and give rise to a percep-

tion of color of which we have at present no idea; but after all, this would be the mere extension of an old power, not the creation of a new one. Although it would not be a mere increase of delicacy, but an extension of range, still it would be on the same lines as the senses that we now possess, and we have no difficulty in forming a close conception of what the result might be.

When we consider that in every case the agent which affects our senses in the production of sensation is the vibration of some medium; when we take into further consideration the fact that the range of these vibrations is from twenty-four per second to seven hundred and seven millions of millions of times per second; and when we reflect that in this wide range not one-hundredth part is now utilized by our present organs of sense, we see what grand possibilities there are for other "gateways" opening into the temple of knowledge and leading to regions not only unexplored but unthought of!

It is evident that such a gateway, or in other words, such a new avenue for the mind to communicate with the outer world must be formed either through the creation or development of a new organ of special sense or through an extension of the power of one of the present organs. Just how such a process might be carried out we shall consider in our next chapter.

CHAPTER V.

The Coming Race.

"Men, my brothers, men the workers, ever reaping something new:
That which they have done but earnest of the things that they shall
do;

For I dipt into the future, far as human eye could see,
Saw the Vision of the world, and all the wonder that would be.

* * * * *
* * * * *

"Till the war-drum throbbed no longer, and the battle-flags were
furl'd

In the Parliament of Man, the Federation of the World.

There the common sense of most shall hold a fretful realm in awe,
And the kindly earth shall slumber, lapt in Universal law."

—*Tennyson.*

SPECULATION concerning the future of our race, the advances that are possible in the condition of humanity, and even in regard to the physico-intellectual condition of the inhabitants of other celestial bodies, has always had a fascination for those whose nature was akin to that of the poets. "The Republic" of Plato, the "New Atlantis" of Bacon, the "Utopia" of Sir Thomas More, and scores of modern works bear testimony to this. Bulwer gave us his wierd account of a race living beneath the surface of

the earth, who would one day break forth from their prison house, destroy or enslave humanity, and inaugurate a new era on earth. Even that staid chemist and philosopher, Sir Humphrey Davy, fresh from manipulating batteries and discovering the bases of earths and alkalies, indulged in dreams and speculations in regard to the physical form taken on by the inhabitants of other planets.

If we give free rein to our imagination, even though we keep strictly within the known possibilities of science, there is no difficulty in evolving very startling conditions. But *possibilities* are not always *probabilities*; and while one-eyed cyclops and

“ Men whose heads

Do grow beneath their shoulders ”

might be possible, it is not probable that nature would ever evolve a race with these characteristics. But that a race with greatly extended powers of perception, and perhaps even with new senses and new organs of special sense; with more healthy organizations; with criminal tendencies eliminated and with moral and intellectual faculties wonderfully strengthened and sharpened, may be the outcome of more enlightened methods of training, and of greater attention to the laws of heredity, is beyond question.

One of our naturalists who, for powers of broad generalization, has been exceeded by few, has boldly

asserted that man is the culmination of organic creation, and that no higher creature is to be expected on earth, because the capacities of the plan of creation are completed or exhausted with him.*

But while it is highly improbable that any higher creature, with structural differences sufficient to constitute a new zoological species, will ever appear on this earth, it is certain that there will come a new race, as much higher than the best of the present white men as they are higher than the Tasmanians or the North American Indians, and perhaps even as much higher than the average man of to-day as Abraham Lincoln was higher than a modern politician.

Such a race, if any should ever appear, must develop along three lines, viz: man's physical, intellectual and moral nature; and the highest development in these directions can never be attained without great improvements in the present methods of culture. That individuals of a very high grade have appeared in the past is well known; but such cases have been sporadic, while the hope of humanity lies in the *general* elevation of the race. Under such improved conditions it is to be expected that there will still be special instances of exceptional greatness; and we may well hope that the great men of the future will be as

*"Introduction to Study of Natural History." By Agassiz. Page 57.

much higher than those of the past as the average man of the future will be higher than the average man of the past.

That the physical characteristics of men are not only capable of great improvement, but that they are actually making rapid progress at the present day is well known. The average duration of life is so constantly increasing that life insurance companies have been obliged to take note of it, and in late years competition has compelled them to conform to tables of expectation of life which would have been ruinous if adopted a hundred years ago. Novelists and romantic young people are fond of believing that "the good old times were better than these;" that savage life is more in accordance with nature than the life of the civilized man, and that the Indian and others of his kind are finer specimens of physical humanity than the white man. Careful observation does not confirm these ideas. The white man lives longer, can endure more and accomplish more than the finest specimens of Indians. Pitted against the red man, the white man beats him even in those points in which the Indian is specially efficient. In short, the white race is altogether ahead of all others, both in the arts of peace and war; the rest merely imitate and follow at an immense distance.

With advancing knowledge will come improved hy-

gienic methods, which will still further elevate the physical condition and even constitution of the masses. Certain diseases, such as consumption, typhoid fever, small pox, the venereal taint and others will undoubtedly be entirely extirpated. The state has always claimed the right to regulate leprosy, and to seclude and even to deport those afflicted with it. Why should not other diseases be treated in the same way, and the community at large be thus protected from their diffusion? Above all, why should the weak, the diseased and the deformed be allowed to marry and propagate their species? Do we wish to perpetuate a race that is imbecile and defective?

Any marked improvement in the general physical health of the people must result in their intellectual improvement; and the advances that have been already made, not only in the sum of human knowledge, but in the average power of individuals to master and appropriate that knowledge, is one of the marked features of modern civilization.

But neither the physical nor the intellectual status of mankind will be advanced with much advantage unless the moral condition of the people is also improved, and the best methods of achieving this, demand the earnest attention of the philanthropist.

In most Christian countries the chief agent in the moral elevation of the masses is the Church; but, un-

fortunately, the Church, in its present condition, is far from being the efficient agent that it ought to be. This is generally acknowledged by all the most thoughtful minds, and very earnest efforts have been made to discover the cause. The cause certainly does not lie in the peculiar creeds or doctrines taught, because whatever we may think of these, the morality inculcated in all the Churches that are acknowledged to be Churches, is unexceptionable. But it is well known to every teacher that mere precepts and formal sermons have little power to sway men's actions; and I think that the best men in all the Churches will agree with me in the statement that there is a lack of that spirituality and power which alone can enable the teacher to exert a living influence on those whom he addresses.

Whatever other influences may be at work, it seems to one who has watched the result very closely, that the evil influence now most efficient in retarding the progress of the good work is the love of money. Of the leaders in too many Churches it might be said as Milton said of certain devils:

"Mammon led them on,
Mammon, the least erected Spirit that fell
From Heaven; for even in Heaven his looks and thoughts
Were always downward bent, admiring more
The riches of Heaven's pavement, trodden gold,
Than ought divine or holy else enjoyed
In vision beatific."

As a result of this, one can scarcely attend a modern church without having "money," "money," "money," intruded upon one's thoughts. Congregations run in debt to build magnificent edifices, and then degrade their souls in trying to scrape together the money to pay for them. Is this overstated? Let us see.

Wandering one Sabbath evening, some time ago, into the principal church of a prominent denomination in a neighboring city, the writer found an Irish delegate addressing the congregation. After certain speeches, which took the place of what would otherwise have been prayers and a sermon, he settled down to work in the most business-like manner. His object was to collect money. Addressing one of the congregation by name, he asked: "Brother Jones, how much will you give?" Jones, having announced the amount of his contribution, the agent attacked Mr. Smith: "Brother Smith, what will you give?" and after Mr. Smith had raised the ante he went on in the same fashion until, when I shut my eyes, I was not quite sure whether it was an auction or a game of poker * that was going on.

Now, can a church, sustained in this way, exert any wholesome influence on those whom they call children

* As I have never played poker, I trust the members of the fraternity will kindly forgive me if I have misrepresented their methods.

of this world? Are such methods of spreading the gospel in accordance with the example of Him who, with a scourge of small cords, drove the merchants and money-changers out of the temple, saying: "Make not my Father's house an house of merchandise. My house shall be called the house of prayer, but ye have made it a den of thieves."

But I may perhaps be told that this is an isolated case, and that organizations should not be condemned for the acts of individuals. Very true. Let us, therefore, turn to the acts of the same organization, *as an organization*.

Some years ago they established a theological seminary. A Wall Street gambler, wishing to make himself respectable in the eyes of the community, *promised* to give them a large sum of money, and for the sake of this money they actually gave his name to the seminary! We believe they never received the money, but they got the opprobrium.

This refers to one denomination. Another denomination furnishes the following instance: Not long ago there lived in this country a man who acquired enormous wealth by the most dishonest and detestable means. One speculation of his, by which he cleared several millions of dollars, ruined many innocent merchants, and brought his own brokers to bankruptcy. His rascalities were on such a scale that it is said that

he, at different times, so thoroughly ruined nearly a score of men that they were driven to commit suicide. Compared with this man, Dicken's Jew, Fagin, who taught little boys to pick pockets, was a gentleman, and Dick Turpin a saint; but under the auspices of a prominent denomination, the money having been contributed, it is now proposed to erect a *memorial church* to this man! Could Mammon lead them to any deeper degradation? Verily St. Paul was right when he told Timothy that "the love of money is the root of all evil."

Of course it is not always so, and the following case offers a cheering contrast to the instances we have cited. In the west of Scotland there was, some years ago, a small Presbyterian congregation that numbered amongst its members a man of considerable wealth. He gave liberally to the cause, and they built and paid for a handsome edifice, which was theirs beyond legal question. But the rich man failed, and then it was found that the money that he gave to the church was not his at the time that he gave it. The congregation unanimously voted to sell their building, and restore the money to those to whom it belonged. This they did. and after that they worshipped God for many years in a greatly inferior building.

"How far that little candle throws his beams!
So shines a good deed in a naughty world."

That in spite of this drawback, the Church is doing good work, and that the many earnest men and women who form its membership are efficient agents in the advancement of the people and the development of a higher race, is beyond question; and the preceding strictures have not been made in a spirit of enmity, but of the kindest good wishes. There can be no hope from the so-called, or rather mis-called, "liberals," agnostics and atheists. Their power to advance the race is at zero. They can raise a laugh, but never give birth to an aspiration. They are mere destructionists, without the power to raise a new hope, or to inspire a noble thought. Like the leaders of a destructive mob, they could tear down the Parthenon, St. Peter's, St. Paul's, and all the great structures of ancient and modern times, and out of the ruins they could not, to save their lives, build a shanty fit to shelter a decent dog.

The coming man will be more intensely, though more intelligently, religious than the man of either the past or the present, and his religion will be strictly in harmony with the great principles of science. This certainly cannot be said of the ideas (if ideas they can be called) advocated by Ingersoll, Buchner, Tom Paine and that crowd.

But if we hope to improve substantially and permanently the character of the race, and so bring on a

new era, we must call to our aid all the resources of science; and we must not rest content with merely advocating the good—we must, with a strong hand, repress the evil, and we must do it in such a way as to extirpate moral deformity, just as we ought to extirpate physical disease; and it will be found that this never can be done until we take advantage of the great principles of heredity, and isolate and prevent the increase of the vicious and the criminal. No criminal should ever be allowed to mix with the people while retaining the power to propagate his species. Those who have studied the subject know that criminals form a class by themselves; they herd together, and their children are almost always criminals. The number of additions made to the criminal classes from the respectable portion of the community is comparatively small, if we except the result of alliances by marriage between criminals and their descendants and the hitherto moral class. Therefore, over the head of every prospective criminal I would hang the threat of impotency, and thus nip the evil in the bud. Not until we give as much attention to the breeding of men and women as we do to the breeding of cattle and poultry will the race attain its highest development.

We have said that there is no probability of the advent of any higher creature, possessing such marked structural differences as would place him in a species

different from man. This we believe to be true, with a single exception: The coming man may develop a new sense-organ, as different from anything that we now possess as the ear is different from the eye. That the Creator might send into the world a child with new faculties, and a new organ whereby these faculties might be utilized, is no more impossible than was the development of the eye or the ear in the past.

The impossibility of forming any idea of the direction which such a new sense might take may be best illustrated by supposing a race born without ears and without any sense of hearing. Let us further suppose that they never had any communication with a race which possessed that sense. What idea could they form of the (to them) new sense? And if a human being, having all the senses now possessed by the race, should visit them, how strange those curious appendages which grow from the sides of our heads would appear, and how inexplicable to them would be the faculty of hearing, and the various acquirements of speech, music, etc., which depend upon this sense! And is not this equally true as applied to man as he now exists, if we suppose the advent among us of some being with a new and hitherto unknown sense?

The advent of such a being would be perilous to the new sense, unless it occurred amongst a very intelligent people, fully prepared to accept the new

order of things. That we may realize what this danger would be, let us suppose that amongst a race devoid of hearing, and of the organs necessary to this sense, a child should be born with ears. If this people were no more highly advanced than the average man of to-day, the first thing the parents would probably do would be to send for a surgeon to extirpate them. If such a development were to occur amongst a race devoid of ears and hearing, and on a level as to knowledge, etc., with the Puritans of New England, as they were a hundred years ago, the strange appendages would be regarded as a mark of the devil; and when the child began to show a sensitiveness to sounds, this opinion would be confirmed, and the poor little thing would undoubtedly be taken out and solemnly burned, and very likely the mother would be tied to the same stake. But it is to be hoped that if ever a child giving indications of a new sense should appear on earth, it will be carefully nurtured and trained, and regarded, not as the work of the devil, but as the choicest gift of God.

That such a development is within the range of *possibility* is unquestionable; whether or not it is in the least degree *probable* only He who formed the eye and the ear can tell.

PART II.

THE reader who has not tried to take a broad view of the subject may perhaps wonder what bearing the matter on which we have dwelt in the preceding pages has upon the avowed object of this book, and ask where, in an investigation of Hell, a discussion of science, of the physical world and of man's relation thereto, has a place.

Whether we regard Hell as a location or a condition, its whole significance to us depends upon our physical and moral constitution, and the relation of that constitution to the outer universe. If, therefore, we are to rise above mere superstition and imagination, the principles discussed in the preceding pages form the basis upon which any intelligent theory of Hell must be formed.

CHAPTER I.

The Common Idea of Hell.

"O thou! whatever title suit thee,
Auld Hornie, Satan, Nick or Clootie,
Wha in yon cavern grim an' sootie,
Closed under hatches,
Spairges¹ about the brunstane² cootie, ³
To scaud⁴ poor wretches.

"Hear me, auld *Hangie*, for a wee,
An' let poor damned bodies be;
I'm sure sma' pleasure it can gie,
E'en to a *deil*,
To skelp⁵ and scaud poor dogs like me,
And hear us squeal!"

— *Burns.*

1. Scatters. 2. Brimstone. 3. A wooden kitchen dish. 4. Scald. 5. Strike.
These definitions are taken from Burns' own glossary.

WHATEVER may be thought of its accuracy, it certainly cannot be said that the common idea of hell is indistinct. A lake of fire, surrounded by devils armed with pitch forks, with which they toss poor humanity into the burning flood, is the picture which arises before most common minds when thoughts of hell present themselves, bidden or unbidden. And even in regard to the location of this "cavern grim and sootie," there is in the common mind no shadow

of doubt. As heaven is supposed to be above us, so hell is beneath our feet, and under ground; and the accuracy of this view is, to the ordinary non-thinker, rendered certain by the fact that as we descend into the earth, either through mines or well-borings, the temperature rises, and geology suggests that at a depth of a few miles the temperature is high enough to answer the purpose of the most ardent advocate of the idea of a literal hell of fire and brimstone.

The absurdities involved in such views seem never to present themselves to those who hold them, as, indeed, how should they?

But while such is the general idea of hell amongst the common people, it is probable that as regards minor details there are as many different ideas of hell as there are persons who hold these ideas. In the opposite case of heaven, the poet is probably correct in saying that

“The Heaven of each is but what each desires,”

so in the case of hell:

The Hell of each is what each one most dreads.

A belief in hell is not by any means confined to those of the Christian faith. A Talmudic writer describing hell, says: “There are in hell seven abodes; in each abode seven thousand caverns; in each cavern seven thousand clefts; in each cleft seven thousand

scorpions; each scorpion has seven limbs, and on each limb are seven thousand barrels of gall. There are also in hell seven rivers of rankest poison, so deadly that if one touches it he bursts."

Even those religions which certain "liberals" are so fond of holding up to us as examples of the result of reason, have their hells. The Parsee tells us of a woman condemned to hell, and beaten with stone clubs by two demons twelve miles high, and compelled to continue eating a basin of putridity, because once some of her hair, as she combed it, fell into the sacred fire." The Brahmanic priests tell of a man who for "neglecting to meditate on the mystic monosyllable Om, before praying, was thrown down in hell on an iron floor and cleaved with an axe, then stirred in a cauldron of molten lead till covered all over with the sweated foam of torture, like a grain of rice in an oven, and then fastened, with head downwards and feet upwards, to a chariot of fire, and urged onward with a red hot goad."

These absurd notions originated with priests whose aim it was to keep the common people in religious and mental slavery. Ridiculous as these ideas were, however, they became the faith of the masses, and formed part of what stood for religion amongst them. But in recent times, such ideas of hell have been, in a measure, repudiated, and men have come to reject not

only the idea of a literal hell, but all belief in future rewards and punishments. Of course we do not now refer to those who hold to universal salvation, and who accept the arguments drawn from Nature and from Scripture for the ultimate redemption of all mankind. With this, as a theological tenet, we have nothing to do. The point which strikes us, and which we are here obliged to note, is that against the degraded notions of hell which formerly held possession of the common mind, a reaction has set in, and the thinking portion of the ordinary untrained reasoners have rejected not only this hell, but all others. This has obtained to such an extent that a belief in hell is no longer fashionable ; and, as is well known, fashion is always stronger than reason, whether for right or wrong.

CHAPTER II.

The Hell of the Poets.

“Ye of intellect
Sound and entire, mark well the lore concealed
Under close texture of the mystic strain.”

—*Dante's Inferno.*

HELL has always been a favorite subject with poets, ancient and modern. The mystery of the unknown, the lurid horror which surrounds the subject, and the general interest always taken in the future and the distant—all combine to make hell a special subject for poets and painters. And without the aid of the poet, the philosopher and the man of every-day affairs would find it difficult or impossible to form ideas of hell that would be sufficiently realistic to influence the feelings and the conduct. As the untold delights of heaven have been symbolized by harps and crowns and beatific visions, so the pains of hell have been embodied in horrors which were specially suited to the requirements of the poet, for the very fact that much had to be left to the imagination was the characteristic which, of all others, best fitted the subject to his purposes.

**"The poet's eye, in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven;
And as imagination bodies forth
The forms of things unknown, the poet's pen
Turns them to shapes and gives to airy nothing
A local habitation and a name."**

The realistic descriptions which some of the poets have embodied in words that bring us in imagination into the very presence of hell itself, have reacted upon the popular thought until, as we have said, though the common idea of hell may be very inaccurate, it has become very distinct.

Whether the hells of the ancient poets bore as close a relation to the religious beliefs of the peoples to whom these poets addressed themselves as the hells of Dante and Milton bear to the hell of the mediæval church, it might be difficult to determine; but the general impression seems to be that the account of hell given by the poets of Greece and Rome reflect very nearly the ideas generally accepted by the people at large. At the same time, there can be no doubt that the poets rendered sharp and definite the outlines of that which else was nebulous and uncertain, and, consequently, confirmed that which was doubtful, and materialized that which before was shadowy and unsubstantial in the common thought and language of the multitude.

While there is scarcely a poet of note, ancient or modern, that has not attempted to describe hell, there are two that stand out above all others as being identified with the subject. Whenever the names of Dante and Milton are mentioned, the "Paradise Lost" of the one, and the "Inferno" of the other, are recalled to our thoughts.

This is not the place to enter upon a discussion of the comparative merits of these great poets, or to dwell at length upon the wondrous imagery under which they reified those ideas which else were abstract and intangible. These ideas they symbolized by all the horrid tortures which imagination could devise—burning lakes, frozen deeps, wind-driven unrest, and all the material conditions that might correspond to the different forms of spiritual misery. Over the gate of Dante's hell was written :

"Through me you pass into the city of woe;
Through me you pass into eternal pain;
Through me among the people lost for aye.
Justice the founder of my fabric moved;
To rear me was the task of power divine,
Supremest wisdom and primeval love.
Before me things create were none, save things
Eternal, and eternal I endure.
All hope abandon ye who enter here." *

* Canto III, Carey's Translation.

And then, being led by his guide in safety through the gate, his journey through the nine circles is described with a minuteness of detail and a boldness of touch that brings the whole region almost as vividly before us as do the horribly realistic picture of Michael Angelo and the terror-bearing engravings of Gustave Doré.

The hell in which Satan finds himself on his fall from heaven is thus described by Milton :

“ A dungeon horrible on all sides round
As one great furnace flamed, yet from those flames
No light, but rather darkness visible
Served only to discover sights of woe,
Regions of sorrow, doleful shades, where peace
And rest can never dwell, hope never comes
That comes to all ; but torture without end
Still urges, and a fiery deluge fed
With ever burning sulphur unconsumed.” *

But horrible as are the word-painted hells of Milton and Dante, they but shadow forth a “ deeper hell ” of a spiritual nature. So Dante tells us in the lines which we have placed at the head of this chapter, and so Milton teaches in the soliloquy which he puts in the mouth of Satan :

“ . . . myself am hell.”

The “ undaunted Fiend ” cowered not before the arms of mighty Seraphim and Cherubim ; nor the

* “ Paradise Lost,” Book I.

burning flood on which his huge bulk lay floating many a rood ; nor even before the darts of Death itself—"fierce as ten Furies, terrible as hell!" But from that "deeper hell," that self-torture which required no dungeon and no ever-burning sulphur, even Satan seemed to shrink.

But men are but children of a larger growth, and many a one has read even "The Pilgrim's Progress" as if it were a history and not an allegory. And so the symbolic hells of the poets become to the people the actual pictures of the real hell of humanity, and as such they pass into their religion and are embodied in their folk-lore.

CHAPTER III.

The Hell of the Churches.

"All mankind by their fall, lost communion with God, are under His wrath and curse, and so made liable to all the miseries of this life, to death itself, and to the pains of hell forever."—*The Shorter Catechism.*

MUCH of what is merely the common idea of hell, crystalized from the poets and from folk-lore has been wrongly attributed to the churches. Thus Buckle, in that curiously illogical fragment, "The History of Civilization in England," in his account of the views held by the Scotch clergy in regard to hell, writes as follows :

"In their eyes the Deity was not a beneficent being, but a cruel and remorseless tyrant. They declared that all mankind, a very small portion only excepted, were doomed to eternal misery. And when they came to describe what that misery was, their dark imaginations revelled and gloated at the prospect. In the pictures which they drew, they reproduced and heightened the barbarous imagery of a barbarous age. They delighted in telling their hearers that they would be roasted in great fires, and hung up

by their tongue. They were to be lashed with scorpions, and see their companions writhing and howling around them. They were to be thrown in boiling oil and scalding lead. A river of fire and brimstone, broader than the earth, was prepared for them; in that they were to be immersed; their bones, their lungs and their liver were to boil, but never be consumed. At the same time worms were to prey upon them, and while these were gnawing at their bodies, they were to be surrounded by devils, mocking and making pastimes of their pains. Such were the first stages of suffering, and they were only the first. For the torture, besides being unceasing, was to become gradually worse. So refined was the cruelty that one hell was succeeded by another; and lest the sufferer should grow callous, he was, after a time, moved on, that he might undergo fresh agonies in fresh places, provision being made that the torment should not pall on the sense, but should be varied in its character, as well as eternal in its duration.

“All this was the work of the God of the Scotch clergy. It was not only His work, it was His joy and His pride. For, according to them, hell was created before man came into the world; the Almighty, they did not scruple to say, having spent His previous leisure in preparing and completing this place of torture, so that, when the human race appeared, it might

be ready for their reception. Ample, however, as the arrangements were, they were insufficient, and hell not being big enough to contain the countless victims incessantly poured into it, had, in these latter days, been enlarged. There was now sufficient room. But in that vast expanse there was no void, for the whole of it reverberated with the shrieks and yells of undying agony. They rent the air with horrid sounds, and amid their pauses, other scenes occurred, if possible, still more excruciating. Loud reproaches filled the ear: children reproaching their parents, and servants reproaching their masters. Then, indeed, terror was rife and abounded on every side. For, while the child cursed the father, the father, consumed by remorse, felt his own guilt; and both children and fathers made hell echo with their piercing screams, writhing in convulsive agony at the torments which they suffered, and knowing that other torments, more grievous still, were reserved for them." *

This passage has been so frequently quoted by a certain class of writers that it has acquired an importance which it otherwise could not possess. The books on which it is founded have long since sunk into oblivion, and would never have been known to the previous or the present generation, if Mr. Buckle had not resurrect-

"History of Civilization in England," By Henry Thomas Buckle. American edition. Page 293.

ed them from the old bookstores, over the contents of which his great wealth gave him large control. These books were the work of a few fanatics, whose writings do not at all represent the views of the intelligent portion of the Presbyterians, or, which is more to the purpose, the statements of the standards of the church. To discuss seriously such sporadic nonsense would be to fight a windmill; but it is on a par with much of Buckle's attempt to construct a "Philosophy of History," based on the so-called "Positive" system of Auguste Comte. Comte, as is well known, anticipated Buckle by many years; and the absurdity of the principles adopted by both these writers is shown by the fact that, arguing from them, Comte prophesied that Spain would rapidly advance to the foremost place in modern civilization! Buckle, as his biographer lets out, was, in the first place, impelled to write a history, not because he had anything special to communicate to the world, but because he desired to make himself famous. His first attempt was a history of the Middle Ages; but he gave this up as not giving sufficient promise of success. Then

"Dreaming of genius which he never had,"

he undertook the history of civilization. Inheriting enormous wealth, he had at his command an immense collection of materials; but, unfortunately, he seems to have been unable to assign to his authorities any

comparative value. To him the writings of Xenophon and the works of Lemuel Gulliver, "Surgeon, at present residing in Rotherhithe, England," seem to have been of equal value. Hence his use of the fanatical sermons of Halyburton, and a few others of whom nobody ever heard.

That at one time some of the Scotch clergy were very bitter in their denunciations of the wicked is neither to be denied nor wondered at. Scotland had for years been the land of martyrs. Noted for their love of civil and religious liberty, her children had been chosen objects of persecution by those in power, and the grandfathers, and even the fathers, of some of the writers quoted by Buckle had been hunted like wild beasts on the rough Caledonian mountains. It was all very well for Buckle, sitting in the lap of luxury and under the protection of that very freedom which the ancestors of these men died to defend, to laugh at their rude ways, and to hold up to ridicule and condemnation their savage denunciations of their enemies. But we must remember that it is in human nature, or at least in ordinary human nature, to desire to make our enemies, and especially the enemies of our faith and of our friends as uncomfortable as possible. It is probable that the devisers of these torments would not have confessed, even to themselves, that such punishments were meted out as a matter of personal revenge;

"Touch not mine anointed, and do my prophets no harm," was their admonition to the wicked; and it was because they held their enemies to be the enemies of God that they "dealt damnation round the land" and made their hell so hot. All this was very natural; but it was not the proper feeling of the truly Christian portion of the people of Scotland, any more than "Holy Willie's Prayer" was a fair representation of their prayers. The whole account is a mere caricature, and is a fitting sample of the "warp and woof" of Mr. Buckle's much-vaunted "Science of History."

What are the real views of the Presbyterians in regard to hell?

In that standard text-book which, in conjunction with a little oatmeal, has for generations furnished the physical and religious pabulum of the youth of Scotland, there is but one passage relating to hell, and that we have placed at the head of this chapter so that the reader may judge for himself as to its nature.

For a more detailed account of the Presbyterian view of the nature of hell, let us turn to the work of one of their accepted teachers, Professor Hodge, of Princeton. He says:

"Our Lord, in His account of the final judgment, says that the wicked shall go away into everlasting punishment; but the righteous into life eternal.

"The sufferings of the finally impenitent, according

to the Scriptures, arise: (1) From the loss of all earthly good; (2) From exclusion from the presence and favor of God; (3) From utter reprobation, or the final withdrawal from them of the Holy Spirit; (4) From the consequent unrestrained dominion of sin and sinful passions; (5) From the operations of conscience; (6) From despair; (7) From their evil associates; (8) From their external circumstances; that is, future suffering is not exclusively the natural consequences of sin, but also includes positive inflictions; (9) From their perpetuity.

“There seems to be no more reason for supposing that the fire spoken of in Scripture is to be literal fire than that the worm that never dies is literally a worm. The devil and his angels, who are to suffer the vengeance of eternal fire, and whose doom the finally impenitent are to share, have no material bodies to be acted upon by elemental fire. As there are to be degrees in the glory and blessedness of heaven, as our Lord teaches us in the Parable of the Ten Talents, so there will be differences as to degree in the sufferings of the lost: some will be beaten with few stripes, some with many.” *

Such are the views of the Presbyterians on the subject of future punishment. That they are substan-

* “Systematic Theology.” By Charles Hodge, D. D. Vol. III, p. 868.

tially in accord with those of other denominations is well known. Occasionally we find an individual whose ideas are of a materialistic order, and who believes in a literal fire, with brimstone for fuel ; though such persons are not very numerous. But every denomination that we can now call to mind has a system of future rewards and punishments embodied in its creed. In fact, such a system seems to be of the very essence of most people's idea of religion, though by some, punishment is accorded more prominence than by others. The Great Teacher, though He freely denounced the wicked, and threatened the Scribes and Pharisees with the most dire wrath and punishment, urged obedience to the rule of right upon other grounds than fear of the wrath to come, His words being : “ If ye *love* Me keep My commandments.”

CHAPTER IV.

The Hell of the Scientists.

"Me miserable! Which way shall I fly
Infinite wrath and infinite despair?
Which way I fly is hell; myself am hell;
And in the lowest deep a lower deep
Still threatening to devour me opens wide,
To which the hell I suffer seems a heaven."

Satan in "Paradise Lost."

SOME one said of Sir Humphrey Davy that if he had not been the greatest chemist of his time he would probably have been one of the greatest poets of his age, and in his very interesting address on "The Use of the Imagination in Science," Tyndall shows how almost all great discoveries are due to an exercise of this faculty. To look beyond the present and the actual; to see with the mind's eye as well as with the bodily sense, is one of the special characteristics of the true scientist. The result that he attains is sometimes very different from that which he expects; but no one can wander far into the wilds of nature without coming upon some beautiful scene or encountering some grand phenomenon, which will fully repay him for the exertion he has made during the journey.

While scientific men in general have left the details of hell to the poets and theologians, the subject of future rewards and punishments has not been allowed to escape attention; and in many cases the thoughts which have been evolved are grand and elevating; but when a loose rein has been given to the imagination the conclusions that have been reached occasionally savor somewhat of the absurd.

Many years ago an American writer published a little book called "The Stars and the Earth," in which advantage was taken of the fact that light takes time to travel, and that, consequently, we never see any occurrence until some time, more or less, after it has happened. For all distances on the earth this interval is so short that it is inappreciable, for, as Herschell says, light would make the circuit of the earth in about the time that it takes to wink an eyelid, and in much less time than it would take a swift runner to make a single stride. But this time, which is imperceptible for all terrestrial distances with which we are familiar, becomes quite important when celestial distances are under consideration. Light travels at the rate of about one hundred and eighty-six thousand miles per second, so that it would come from the sun in about eight minutes, and from the nearest fixed star in about four years. The light from Sirius takes about eight and a half years to reach us, and

that from Procyon about twelve years ; so that when we look at Sirius we see this star as it was more than eight years ago, and not as it is at this moment. But there are other and much more distant stars ; and it is a generally accepted truth that there are stars so distant that the light from them has been thousands of years in reaching us. If, then, an inhabitant of these stars were gifted with powers of vision sufficiently acute to enable him to see what is happening on this earth, he would see, not the events of to-day, but the occurrences of thousands of years ago. Still further : If the passage of a spiritual being from one part of space to another be instantaneous, like the force of gravitation, and not slow like light, then a being gifted with powers sufficiently acute (not an inconceivable condition) would be able to call up before his actual vision at any time, the occurrences of any period of history. On this theory space contains a perfect series of light-pictures, giving the complete history of the universe from all eternity to the present moment.

Taking advantage of this idea, M. Cammille Flammarion has written an exceedingly interesting book, "Lumen—Experiences in the Infinite," in which he suggests how this great truth, for truth it is, might come into play in the punishment of the wicked. His words are :

"An act performed can never be blotted out, and

no power can ever undo it. A crime may be committed in the heart of a desert region. The criminal may go far away from the scene of his crime; he may remain undiscovered, and suppose that the act which he has committed is *past* forever. He has washed his hands of it; he has repented; he believes his act *obliterated*. But in reality nothing is destroyed. At the moment when this deed was committed the light seized it and carried it into the heavens with the rapidity of lightning. It is incorporated in a ray of light. It is eternal, and will be transmitted eternally through space.

“A good action is done in secret; he who performs it conceals it; the light takes possession of; far from being forgotten, it will live forever.

“Napoleon, to gratify his personal ambition, voluntarily caused the death of five millions of men, of an average age of thirty years, who had, consequently, thirty-seven years longer to live, according to the law of probabilities and the allotted period of human life. He has, then, destroyed one hundred and eighty-five millions of years. His punishment, his expiation, is to be borne on the ray of light which proceeded from the plains of Waterloo on the 18th of June, 1815; to move through space with the swiftness of the light; to have constantly before him the fatal moment when he saw the scaffolding of his vanity crumble away

forever, to feel unceasingly the despair of that fatal moment, and to remain attached to this ray of light during the hundred and eighty-five millions of years for whose destruction he is responsible.

“In acting thus instead of worthily fulfilling his mission, he has retarded for that length of time his progress in spiritual life.”

This is certainly a realistic though, to our minds, rather a crude form of hell. Instead of causing a criminal to ride on a ray of light, like a witch on her broomstick, it would suffice to hang a good photograph constantly in his sight; or he might be confined in a cell whose walls, covered with *encaustic* delineations of his atrocities, would forever keep before him the horrors which he originated on earth.

There is to some minds a grim satisfaction in the idea that the punishment of the wicked shall accord precisely with the character of the crime committed. For example: That Gorman, Brice, McPherson, Smith, and other so-called “sugar” senators, should be put in sugar barrels, which might then be headed up and the occupants, like the “very considerable devil,” Asmodeus, so well described by Le Sage, kept confined by supernatural power, be left to reflect upon the atrocity of robbing every poor baby and old woman in the land, so that they might make an addition to their already stupendous fortunes.

But such ideas have no place in science. If the pall of darkest night should fall upon the universe; if every sun should become black, and every planet cold, mind would still exist, and would be its own scourge or its own reward without the aid of any physical adjunct whatever. Let us turn, therefore, to the thoughts of a calmer and more philosophic mind, and examine the conclusions of one whose mathematical attainments certainly give assurance that his imagination will not run riot :

“Who has not felt the painful memory of departed folly? Who has not at times found crowding on his recollection, thoughts, feelings, scenes, by all perhaps but himself forgotten, which force themselves involuntarily on his attention? Who has not reproached himself with the bitterest regret at the follies he has thought, or said, or acted? Time brings no alleviation to these periods of morbid memory: the weakness, of our youthful days, as well as those of later life, come equally unbidden and unarranged, to mock our attention and claim their condemnation from our severer judgment.

“It is remarkable that those whom the world least accuses, accuse themselves the most; and that a foolish speech, which at the time of its utterance was unobserved as such by all who heard it, shall yet remain fixed in the memory of him who pronounced it, with

a tenacity which he vainly seeks to communicate to more agreeable subjects of reflection. It is also remarkable that whilst our own foibles, or our imagined exposure of them to others, furnish the most frequent subject of almost nightly regret, yet we rarely call to recollection our acts of consideration for the feelings of others, or those of kindness and benevolence. These are not the familiar friends of our memory, ready at all times to enter the domicile of mind its welcome but unbidden guests. When they appear, they are usually summoned at the command of reason, to meet some expected ingratitude, or when the mind retires within its council chamber to nerve itself for the endurance or the resistance of injustice.

If such be the pain, the penalty of thoughtless folly, who shall describe the punishment of real guilt? Make but the offender better, and he is already severely punished. Memory, that treacherous friend but faithful monitor, recalls the existence of the past, to a mind now imbued with finer feelings, with sterner notions of justice, than when it enacted the deeds thus punished by their recollection.

“If additional knowledge be given to us, the consequences of many of our actions appear in a very altered light. We become acquainted with many evils they have produced, which, although quite unintentional on our part are yet subjects of painful regret.

But this unavailing regret is mixed with another feeling far more distressing. We reproach ourselves with not having sufficiently employed the faculties we possessed in acquiring that knowledge, which, if we had attained it, would have prevented us from committing acts we now discover to have been injurious to those we best loved.

“On the other hand, the good which such increased knowledge enables us to discover that we have *unintentionally* done, fails to produce the satisfaction always arising from a virtuous motive: and it is accompanied by the regret that, by a sufficient cultivation of our faculties, we might have enjoyed a still higher gratification, by a more efficient service to our fellow-creatures.

“Thus, on whichever side we look at the question, knowledge *alone* is advantageous to virtue; and if additional knowledge *alone* were given in a future life, it would cause the best of us to regret the errors of the present.

“Let us now consider the consequences of a higher tone of moral feeling—of a perception of excellencies of character in others, hitherto unappreciated.

“Without the torment arising from additional knowledge, we may, in such circumstances, perceive that the pain we have inflicted for imagined offences was quite beyond their real deserts; and may feel that the

justice we have done to others, has been quite disproportioned to the sacrifices they have made to serve us.

“If, without any addition to our intellectual faculties, increased perfection were given to our bodily senses, the same result would ensue. Wollaston has shown, that there are sounds of such a nature, that they can be heard by some individuals, but are inaudible to others—a circumstance which may arise either from the incapacity of the parts of the ear to vibrate in the same time as those producing the sound, or from the force of the sounding body being insufficient to communicate motion through the air to those portions of the ear whose movement is required to produce the sensation of hearing.

“If we imagine the soul, in an after-stage of our existence, to be connected with a bodily organ of hearing so sensitive, as to vibrate with motions of the air, even of infinitesimal force, and if it be still within the precincts of its ancient abode, all the accumulated words pronounced from the creation of mankind will fall at once upon that ear. Imagine, in addition, a power of directing the attention of that organ entirely to any class of those vibrations: then will the apparent confusion vanish at once; and the punished offender may hear still vibrating on his ear the very words uttered, perhaps, thousands of centuries before, which at once caused and registered his own condemnation.

“ It seems, then, that either with improved faculties or with increased knowledge, we could scarcely look back with any satisfaction on our past lives ;—that, to the major part of our race, oblivion would be the greatest boon. But if, in a future state, we could turn from the contemplation of our own imperfections, and with increased powers apply our minds to the discovery of nature’s laws, and to the invention of new methods by which our faculties might be aided in that research, pleasure the most unalloyed would wait us at every stage of our progress. Unclogged by the dull corporeal load of matter which tyrannizes over even our most intellectual moments, and chains the ardent spirit to its unkindred clay, we should advance in the pursuit, stimulated instead of wearied by our past exertions, and encountering each new difficulty in the inquiry with the accumulated power derived from the experience of the past, and the irresistible energy resulting from the confidence of ultimate success.

“ Whether, then, we regard our future prospects as connected with a far higher acuteness of our present senses,—or, as purified by more exalted moral feelings,—or, as guided by intellectual power surpassing all we contemplate upon earth, we equally arrive at the conclusion, that the mere employment of such enlarged faculties, in surveying our past existence, will be an ample punishment for all our errors ; whilst, on the

other hand, if that Being who assigned to us those faculties should turn their application from the survey of the past, to the inquiry into the present and to the search into the future, the most enduring happiness would arise from the most inexhaustible source." *

Science gives no countenance to a physical hell, and in regard to the location of any place of future punishment she is dumb. Speaking of the description of hell given by Christ in the words: "Bind him hand and foot, and take him away, and cast him into outer darkness: there shall be weeping and gnashing of teeth," the authors of "The Unseen Universe" say: "This graphic and powerful picture of the fate of the lost, given in the New Testament, fared as badly as other conceptions when it fell into the hands of the Materialists of the middle ages. Its true meaning was entirely obliterated, and the Christian hell, instead of being the Gehenna of the universe, the place where all its garbage and filth is consumed, was changed into a region shut in by adamantine walls, and full of impossible physical fires—the Devil being the chief stoker.

"The one idea is awful, while the other is simply grotesque."

* "Ninth Bridgewater Treatise." page 159.

CHAPTER V.

*There is no escape from Eternal Punishment except by
a Miracle.*

"He that is unjust, let him be unjust still: and he that is filthy, let him be filthy still."—*The Apocalypse.*

HAVING thus glanced over a few of the ideas which have obtained amongst the common people, or have been promulgated by individual thinkers, let us now consider the legitimate conclusions in regard to future punishment which may be drawn from the known constitution of nature, and man's relation thereto.

Science, as we have seen, repudiates all physical hells, and regards the materialistic ideas of those who advocate real fire and brimstone with as much disfavor as it does the materialistic ideas of those who attempt to substitute matter and force for God.

The following propositions are as well founded and as firmly established as any of the truths of physics or of natural history, and are not for one moment to be compared or confounded with the wild speculations to which scientific men sometimes lend their names,

such, for example, as the now universally repudiated Bathybius, which Huxley, in his hatred of all religion, put forward as a grand discovery and a complete substitute for the Creator.

1.—We have seen, in the preceding chapters of this book, that every phenomenon* is the result of preceding causes, and that it, itself, becomes the cause of other occurrences, which, in turn, are the cause of others, and so on, in endless succession. This obtains both in regard to physical and moral matters. If we thrust our naked hand into a fire it will be burned, and if we commit a crime the act will bring with it consequences which, to a rightly constituted mind, result in the keenest torture. If this be not true, then science has no solid foundation whatever; our boasted knowledge is a delusion, and the investigations upon which all our great scientific principles depend, rest upon an intellectual quicksand.

2.—That every man and woman born of Adam has committed wrong at some time or other requires no Paul and no Calvin to convince us. An assurance of this fact lives in the breast of every sane and honest human being. Men like Ingersoll may wipe their mouths, as did the adulterous woman, and say, "We

* The word "phenomenon" does not properly signify a wonder or a freak, a sense in which it is frequently employed. This use of the word is a perversion of its true meaning. It is simply the Greek word for an "appearance," and by scientific writers is used to signify anything which is apparent.

have done no wrong ;" * but the majority of mankind do not feel that way. In the words which Shakespeare puts in the mouth of Iago :

" . . . Who has a breast so pure,
But some uncleanly apprehensions
Keep leets and law-days, and in sessions sit
With meditations lawful?"

Or as it is elsewhere more beautifully and forcibly expressed : " If we say we have no sin we deceive ourselves, and the truth is not in us."

3.—If the consequences of every act cling to us for all time, then the consequences of our wrong-doing can be no exception. The wrong-doer will go down through all the endless cycles of eternity chained to his doom, not by the arbitrary sentence of a capricious judge, but by the adamant links of cause and effect working in strict accord with laws whose action knows no pity and no mitigation. Compared with such links, the iron chains which bound the vulture-gnawed Prometheus to his rock are but as cords of silk and ropes of sand. From such a doom and such a power there is no escape but by a miracle.

4.—That we may appreciate the certainty and severity of this doom it is not necessary that we should accept or reject any of the doctrines known as free-will, predestination, fore-ordination, etc. These play

* Proverbs xxx, 20.

no part in the developments which we now describe. Their part in the total result came in at an earlier stage, if at all, and we have no occasion to discuss them; and such discussion could lead to no useful result. Milton, one of the keenest and brightest minds of England's golden age of intellect, confesses that they puzzled the devil himself. His well-known description of the Symposium held by the most intellectual of the fallen spirits will be recalled by the reader :

“Others apart sat on a hill retired,
In thoughts more elevate, and reasoned high
Of providence, fore-knowledge, will and fate,
Fix'd fate, free will, fore-knowledge absolute,
And found no end, in wandering mazes lost.”

And out of these mazes Pope's famous lines :

“And binding nature fast in fate
Left free the human will,”

do not help us one bit.

Free will and fore-ordination cannot affect an act after that act has been performed. A man stands on the edge of a tall precipice. It may or may not lie within the scope of his will whether or not he shall cast himself down. With this we have nothing to do. But we know that after he *has* cast himself down, he cannot recall the act; he cannot stop midway or return, as he chooses. It follows as an inevitable consequence that he will go to the bottom and be dashed to pieces. With his fall; with the velocity which he

must attain, and with the force with which he strikes the rocks below, neither fate nor free will can have anything whatever to do.

And this is equally true in the moral world. A man commits a crime; before the crime was committed he may have been free to exercise his will, or he may not; this may be a subject of dispute. But after the crime has been committed, free will and predestination play no part in the subsequent train of consequences; and from these there is no way of escape.

5.—That the intellectual and moral sensibilities may be rendered more delicate and more acute is within the range of our knowledge and experience. Some men seem to be under the influence of a moral anæsthetic, and do not feel the keen pain which results from knowing that they have done ill. But let the moral sense be awakened, and an increased knowledge attained of the evil results of their actions, and then the intellectual torture becomes fearful.

As is well known to medical men, cases often arise in which the nervous system becomes supersensitive, and the prick of a pin or the slightest touch give exquisite pain. Let us imagine that after a career of crime, the moral and intellectual sensibilities of the evil-doer should be rendered intensely acute; can we imagine a more terrible hell than that to which he would thus be consigned?

6.—If these sufferings are the normal result of natural laws, then so long as these laws maintain their sway there is no escape and can be no pardon. Pardon, that is a release from misery, can only come by a suspension of these laws, or, in other words, by a miracle.

Thus far, then, science leads us, and no farther. When she has pronounced our doom, she shows no way of pardon or escape; and he who relies upon natural law and the general beneficence of the Creator must see that in this there is no promise of mitigation. If left to nature and nature's laws, we can only sit down in the dust and cry, "Woe is me!"

CHAPTER VI.

Miracles.

“God, in ordinary providence making use of means, yet is free to work without, above, or against them at pleasure.”—*Westminster Confession.*

IN its primary signification the word *miracle* simply means a *wonder*—something that occasions astonishment. Used in this sense, there are many acknowledged miracles; but it will be found that their number diminishes as our knowledge increases, and the feeling of mere wonder gives place to one of intelligent admiration.*

But there are two other meanings which have been given to the word miracle. The first is that given by Hume in his chapter on Miracles in these words: “A miracle is a violation of the laws of nature.” The

*The word “admire” was formerly used in the sense of merely to wonder. Thus Milton, in describing the first interview of Satan with Death, says:

“The undaunted Fiend what this might be admired,
Admired, not feared.”

So, too, in “Hamlet,” Horatio says:

“Season your admiration for awhile
With an attent ear, till I may deliver,
Upon the witness of these gentlemen,
This marvel to you.”

It now more generally means to regard with delight.

other is that generally accepted by intelligent theologians and thus expressed by Professor Hodge in his "Systematic Theology," Vol. I, page 618: "A miracle may be defined to be an event, in the external world, brought about by the immediate efficiency, or simple volition of God."

It is obvious that Hume's definition merely describes a particular case, which may be included in the much wider generalization of Dr. Hodge, and that a miracle might consist in setting known forces and their laws into normal action in a special case, as well as in reversing or suspending them.

Few questions have been discussed with greater bitterness and less intelligence than that of miracles. Hume himself supposed that he had furnished an argument against miracles which "will be useful as long as the world endures," and yet, as has been well shown by Babbage,* this argument is singularly defective. Hume had a slight smattering of mathematics, and seizing upon the then recently developed doctrine of Probabilities, he attempted to show that the probability that a witness would lie or be deceived was so much greater than the probability that a miracle should be performed, that it is utterly impossible to give a satisfactory proof of the occurrence of a miracle. Babbage, who was a most profound and expert mathe-

*In the "Ninth Bridgewater Treatise."

matician, shows very clearly that the probability may be the other way, and, consequently, Hume's famous argument falls to the ground.

To me it seems that the distinguishing characteristic of a miracle is that it could not have occurred in the ordinary course of nature, and would not have occurred without the direct intervention of divine power.

If we accept this definition (which does not differ materially from that of Dr. Hodge), then a miracle which can be explained on natural grounds is no miracle at all, but is either an occurrence which, at the time, was beyond our knowledge and comprehension, or it is a mere trick, like that of the exhibitors of legerdemain.

For example: Let us take the case in which Elijah called down fire from heaven, and consumed the burnt offering after several barrels of water had been poured on it. Now, it would be easy for a chemist, furnished with the products of the modern laboratory, to so arrange matters that the very addition of the water to the pile of combustibles would cause a fierce fire. But if we accept any such explanation of the occurrence, then the alleged miracle is either an accidental combination of favorable circumstances, or it is a mere trick and deception, and not a miracle.

With miracles in general we do not propose to concern ourselves at this time; but the Christian plan of

salvation hinges upon two cardinal miracles—the incarnation of Christ and His resurrection. If these two miracles did not occur, or if they were not the result of the direct interposition of the Almighty, then the Christian religion is a mere myth, and the vaunted power of the Christian plan of salvation to save us from that hell which, as we have seen, *must* be the certain result of wrong-doing, is a sham and a delusion.

A very brief examination of the miracles recorded in the Scriptures show that they may be divided into two great classes: Those which serve as testimony, evidence or “signs,” and those which are themselves fundamental to the plan of salvation. Of the second class there are but the two we have already mentioned—the Incarnation and the Resurrection, and it is with these latter only that we are at present concerned.

Three objections are usually urged against miracles:

1. That is it impossible that a miracle should occur;
2. That miracles are unnecessary;
3. That it is impossible to give satisfactory proof of the occurrence of a miracle.

Let us consider these objections in the order given.

1.—Impossibilities are of two classes—absolute and conditional. An absolute impossibility is that which we cannot conceive to be possible, even to Omnipotent

tence. For example: We cannot conceive that even the Creator Himself could so arrange matters that the sum of the squares erected on the two sides of a plane right-angled triangle should not be exactly equal to the square erected on the hypotenuse. If they should be anything else but equal, the triangle could not be right-angled, and the supposition would involve a contradiction.

Conditional impossibilities are of a very different nature. That which is impossible to the dog may be quite possible to the man; and that which is impossible with man may be quite possible with the Creator. For example: Man has no power to change the force with which the attraction of gravitation acts upon matter; but it is quite conceivable that the same Creative Power which gave origin to this force, might alter, suspend or reverse it at pleasure.

So in regard to the Incarnation. The claim is that Jesus Christ was conceived by a virgin without the agency of any male of the human race. Now, this is an impossibility in so far as it is entirely beyond the power of any human being to cause such an occurrence; and in all the experience recorded by science, no instance of the kind is known in the case of the mammalia.

But that the production of progeny by a virgin mother is not an absolute or inconceivable impossi-

bility is shown by the fact that virgin aphides and queen bees do produce offspring. This fact, which is known as parthenogenesis, is established beyond all question, and, indeed, is common knowledge amongst bee-keepers.

At the same time, to explain the conception of Jesus Christ by extending the physiological principles which obtain amongst bees and other insects to the human race, as has been done by Joseph Cook, is not only to violate all principles of science, but to take away from the Incarnation all its power and significance.

But if we bear clearly in mind the difference between absolute and conditional impossibilities we shall find no difficulty in seeing that the objection of impossibility, as applied to the fundamental miracles, falls to the ground.

2.—As regards the fundamental miracles of Christianity, the objection that they are unnecessary has already been shown to be opposed to the actual facts in the case. Science positively pronounces that a miracle is a necessity if man is to escape eternal punishment.

3.—The contention that the occurrence of miracles is not susceptible of satisfactory proof, (which was the aim of Hume's famous argument,) depends upon the person that is to be satisfied. None of the great facts of history can be proved beyond all question; and in

every such case it is the weight of evidence, combined with the reasonableness of the facts that are said to have occurred, that works conviction. Now, if it can be shown in any given case that a miracle was necessary, and also that it was not impossible, Hume's argument is robbed of two-thirds of its force; and when a mathematician like Babbage shows that the doctrine of probabilities does not pronounce against the possibility of satisfactory proof being given, all reasonable objection vanishes entirely.

CHAPTER VII.

Salvation Through Jesus Christ.

“For the preaching of the cross is to them that perish, foolishness; but unto us which are saved, it is the power of God.

* * * * *

“But we preach Christ crucified, unto the Jews a stumbling-block, and unto the Greeks foolishness.”—*Paul*.

WE have now reached a point beyond which physical science cannot guide us. But in looking around for a way of escape, there is one system presented to us which claims an origin as high as the laws of nature, and which, whether right or wrong, has been accepted by millions. It was not elaborated by learned theologians or by subtle philosophers, but was first presented by plain, practical men, who claimed for it a directly divine origin.

It is true that, both in ancient and modern times, the plan of salvation presented by these men has been opposed by both priests and philosophers. No religious dogma ever received such bitter opposition and contumely as has that article of the Christian creed which sets forth the salvation of man through

the vicarious atonement of Christ. It has been a laughing-stock and a by-word amongst those who prided themselves upon their intellectual attainments; and some have even claimed that it is more opposed to the established knowledge and to the common sense of humanity than is the fetich of Africa or the Great Spirit of the "Poor Indian."

On the other hand, the most superficial observation must convince any unprejudiced person that this system has carried supreme peace and happiness to thousands, and that those who have accepted the doctrine in humility and in honesty have been made better thereby.

In regard to its truth or its falsity science is dumb; it is above and beyond the range of her vision. But there are two points in this connection which deserve our serious attention before we finally reject it as unworthy of consideration.

First, then, we have seen the necessity for some means of salvation which shall be above and beyond the ordinary laws of nature. If anything is certain, it is this, and therefore we are led to expect that a wise and beneficent Creator would provide extraordinary means to meet this extraordinary need. Speculations on the origin of evil, and on the responsibility of man for the sins of his forefathers—even away back as far as Adam and Eve—do not help us in the least. We

are painfully conscious that evil is here ; that we are its victims, and that we are suffering from it. This is the tremendous fact that stares us in the face, and from which agnosticism yields no relief.

Secondly, we must bear in mind that if the known laws of nature should be in any way superseded, we then have no guide to a knowledge of the new methods and modes of action which may come into play, and, consequently, a system which, when viewed from the standpoint of our present knowledge, may appear to us mere foolishness, may in reality be the manifestation of the highest wisdom.

We have seen that the mental constitution of man is correlated in a marvelous and minute degree with the laws of nature. When these laws are suspended or reversed this correlation is completely abrogated, and we are launched on a sea of speculation, without either compass or rudder.

Therefore, while on the one hand science asserts the necessity for some such means as those set forth in the Christian plan of salvation, on the other, she neither asserts nor denies the feasibility of that plan.

